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Question Paper Preview

Question Paper Name:	Mechanical Engineering 30th April 2019 Shift1
Subject Name:	Mechanical Engineering
Share Answer Key With Delivery Engine:	Yes
Actual Answer Key:	Yes

Mathematics

Number of Questions:	50
Display Number Panel:	Yes
Group All Questions:	No

Question Number : 1 Question Id : 67809439457 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The adjoint of $A = \begin{pmatrix} 1 & 4 & -2 \\ -2 & -5 & 4 \\ 1 & -2 & 1 \end{pmatrix}$ is

Options :

1. $\begin{pmatrix} 1 & 4 & -2 \\ -2 & -5 & 4 \\ 1 & -2 & 1 \end{pmatrix}$

2. $\begin{pmatrix} 1 & 4 & -2 \\ -2 & -5 & 4 \\ 1 & -2 & 1 \end{pmatrix}$

3. $\begin{pmatrix} 3 & 0 & 6 \\ 6 & 3 & 0 \\ 9 & 6 & 3 \end{pmatrix}$

4. $\begin{pmatrix} 3 & 2 & 1 \\ 4 & 1 & -1 \\ 0 & 3 & 4 \end{pmatrix}$

Question Number : 2 Question Id : 67809439458 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If A is a square matrix of order 3 then (adj A).A=

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Options :

1. A. (adj A)

2. A× (adj A)

3. A- (adj A)

4. A+ (adj A)

Question Number : 3 Question Id : 67809439459 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The inverse of A=$\begin{pmatrix} 2 & 3 \\ 2 & 5 \end{pmatrix}$ is

Options :

1. $\begin{pmatrix} 5/4 & -3/4 \\ 1/2 & 1/2 \end{pmatrix}$

2. $\begin{pmatrix} 5/4 & 3/4 \\ -1/2 & 1/2 \end{pmatrix}$

3. $\begin{pmatrix} 5/4 & -5/4 \\ -1/2 & 1/2 \end{pmatrix}$

4. $\begin{pmatrix} 5/4 & -3/4 \\ -1/2 & 1/2 \end{pmatrix}$

Question Number : 4 Question Id : 67809439460 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $A = \begin{pmatrix} 3 & 2 & x \\ 4 & 1 & -1 \\ 0 & 3 & 4 \end{pmatrix}$ is a singular matrix then the value of x is

Options :

1. $11/12$

2. $-11/12$

3. $^{13}/_{12}$

4. $^{5}/_{4}$

Question Number : 5 Question Id : 67809439461 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If A=$\begin{pmatrix} 3 & 1 \\ -1 & 2 \end{pmatrix}$ then $A^2 - 5A + 7I$ is

Options :

1. $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$

2. $\begin{pmatrix} 0 & 3 \\ 2 & 0 \end{pmatrix}$

3. $\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$

4. $\begin{pmatrix} 2 & 3 \\ 2 & 5 \end{pmatrix}$

Question Number : 6 Question Id : 67809439462 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Resolve $\frac{3x+7}{(x-1)(x-2)}$ into partial fractions

Options :

1. $\frac{12}{(x-2)} - \frac{10}{(x-1)}$

2. $\frac{13}{(x-2)} - \frac{10}{(x-1)}$

3. $\frac{13}{(x-5)} - \frac{10}{(x-1)}$

4. $\frac{13}{(x-2)} - \frac{10}{(x-7)}$

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Question Number : 7 Question Id : 67809439463 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Resolve $\frac{5x^2+1}{x^3-1}$ into partial fractions

Options :

1. $\frac{12}{(x-2)} - \frac{10}{(x-1)}$

2. $\frac{13}{(x-2)} - \frac{10}{(x-1)}$

3. $\frac{13}{(x-5)} - \frac{10}{(x-1)}$

4. $\frac{2}{(x-1)} + \frac{3x+1}{x^2+x+1}$

Question Number : 8 Question Id : 67809439464 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $tan^2\theta + sec\theta = 5$ then the value of $\cos\theta$ is

Options :

1. $-1/3$ or $1/2$

2. $-11/12$ or $1/2$

3. $13/12$ or $-1/3$

4. $5/4$ or $1/2$

Question Number : 9 Question Id : 67809439465 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $16sin^3\theta + 8cos^3\theta$ is

Options :

1. 3

2. 1

3. -3

4. 0

Question Number : 10 Question Id : 67809439466 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $sin\alpha = {}^{15}/_{17}$, $cos\beta = {}^{12}/_{13}$ then the value of $sin(\alpha + \beta)$ is

Options :

1. ${}^{110}/_{105}$

2. $-{}^{121}/_{152}$

3. ${}^{220}/_{221}$

4. ${}^{5}/_{4}$

Question Number : 11 Question Id : 67809439467 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $cos20^0 cos40^0 cos60^0 cos80^0$ is

Options :

1. ${}^{11}/_{12}$

2. ${}^{1}/_{16}$

3. ${}^{13}/_{12}$

4. ${}^{5}/_{4}$

Question Number : 12 Question Id : 67809439468 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\frac{\cos 17^0 + \sin 17^0}{\cos 17^0 - \sin 17^0}$ is

Options :

1. $\cos 20^0$

2. $\tan 65^0$

3. $\tan 60^0$

4. $\tan 62^0$

Question Number : 13 Question Id : 67809439469 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $sin\frac{\pi}{5}sin\frac{2\pi}{5}sin\frac{3\pi}{5}sin\frac{4\pi}{5} =$

Options :

1. $\frac{4}{15}$

2. $\frac{5}{16}$

3. $\frac{-5}{16}$

4. $\frac{7}{15}$

Question Number : 14 Question Id : 67809439470 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $tan^{-1}x + tan^{-1}y + tan^{-1}z = \frac{\pi}{2}$ then the value of $xy + yz + zx$ is

Options :

1. -1

2. 3

3. 5

4. 1

Question Number : 15 Question Id : 67809439471 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The general solution of $4cos^2x - 3 = 0$ is

Options :

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1. $2n\pi \pm \frac{\pi}{6}$

2. $2n\pi \pm \frac{7\pi}{6}$

3. $3n\pi \pm \frac{5\pi}{6}$

4. $2n\pi \pm \frac{11\pi}{6}$

Question Number : 16 Question Id : 67809439472 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The modulus of a complex number $\sqrt{3} + i$ is

Options :

1. -2

2. 3

3. 2

4. 5

Question Number : 17 Question Id : 67809439473 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $(a-b)^2 cos^2\left(\frac{C}{2}\right) + (a+b)^2 sin^2\left(\frac{C}{2}\right)$ is

Options :

1. C^3

2. C

3. C^5

4. C^2

Question Number : 18 Question Id : 67809439474 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $x + \frac{1}{x} = 2\cos\theta$ then the value of $x^n + \frac{1}{x^n}$ is

Options :

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1. $2\cos n\theta$

2. $-2\cos n\theta$

3. $3\cos\theta$

4. $2\sin n\theta$

Question Number : 19 Question Id : 67809439475 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $2tan^{-1}\left(\frac{1}{3}\right)+tan^{-1}\left(\frac{1}{7}\right)$ is

Options :

1. $\frac{\pi}{4}$

2. $-\frac{\pi}{4}$

3. $\frac{\pi}{6}$

4. $\frac{\pi}{3}$

Question Number : 20 Question Id : 67809439476 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The length of the major axis of the ellipse: $4x^2+3y^2=48$ is

Options :

1. 10

2. 11

3. 12

4. 13

Question Number : 21 Question Id : 67809439477 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The Centre of the ellipse: $9x^2+25y^2-18x+100y-116=0$ is

Options :

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1. $(2,-1)$

2. $(-1,-2)$

3. $(1,-2)$

4. $(1,2)$

Question Number : 22 Question Id : 67809439478 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The equation of the parabola with vertex $(2,-1)$ and focus $(2,-3)$ is

Options :

1. $x^2-4x+8y+12=0$

2. $x^2-4x-8y-12=0$

3. $x^2+4x-8y-12=0$

4. $x^2+5x-8y-11=0$

Question Number : 23 Question Id : 67809439479 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The length of the latus rectum of the hyperbola: $\frac{x^2}{9}-\frac{y^2}{16}=1$ is

Options :

1. 9 units

2. 5 units

3. 6 units

4. 13 units

Question Number : 24 Question Id : 67809439480 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the length of latus rectum is $\frac{9}{2}$ and the distance between its foci is 10 then the equation of hyperbola is

Options :

1. $\frac{x^2}{16}+\frac{y^2}{9}=1$

2. $\frac{x^2}{18}-\frac{y^2}{9}=1$

3. $\frac{x^2}{16}-\frac{y^2}{6}=1$

4. $\frac{x^2}{16}-\frac{y^2}{9}=1$

Question Number : 25 Question Id : 67809439481 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The equation of the parabola with focus at (-3,2) and vertex (-2,2) is

Options :

1. $x^2-4x+8y+12=0$

2. $x^2+5x-8y-11=0$

3. $y^2+4x-4y+12=0$

4. $x^2-4x-8y-12=0$

Question Number : 26 Question Id : 67809439482 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $y=\frac{a+bx}{b-ax}$ then the derivative of y with respect to x is

Options :

1. $\frac{a^2+b^2}{(b-ax)^2}$

2. $\frac{a^2+b^2}{(b+ax)^2}$

3. $\frac{a^2-b^2}{(b-ax)^2}$

4. $\frac{a+b}{(b-ax)^2}$

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Question Number : 27 Question Id : 67809439483 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $y = \frac{2+3\sinh x}{3+2\sinh x}$ then the derivative of y with respect to x is

Options :

1. $\frac{5\cosh x}{(3+2\sinh x)^2}$

2. $\frac{5\sinh x}{(3+2\sinh x)^2}$

3. $\frac{5\sin x}{(3-2\cosh x)^2}$

4. $\frac{sinh^2 x}{(2-3\sinh x)^2}$

Question Number : 28 Question Id : 67809439484 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The range of x for which the function $x^3 - 3x^2 - 45x + 2$ is increasing with x is

Options :

1. $(3, -5)$

2. $(-3, -5)$

3. $(3,5)$

4. $(-3,5)$

Question Number : 29 Question Id : 67809439485 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If u is a homogeneous function of x and y with degree n then $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} =$

Options :

1. $-nu$

2. n^2u

3. nu

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4. $nu^2 + u$

Question Number : 30 Question Id : 67809439486 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The angle between the curves $y = x^2 + 3x - 7$ and $y^2 = 2x + 5$ at (2,3) is

Options :

1. $\tan\theta = 2$

2. $\sec\theta = 2$

3. $\cos\theta = 1$

4. $\sin\theta = 3$

Question Number : 31 Question Id : 67809439487 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The maximum value of the function $2x^3 - 12x^2 + 18x + 5$ is

Options :

1. 13

2. 12

3. 10

4. 15

Question Number : 32 Question Id : 67809439488 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The three sides of a trapezium are equal each being 6" long then the area of the trapezium when it is maximum is

Options :

1. 27 square units

2. 33 square units

3. $27\sqrt{3}$ square units

4. $29\sqrt{3}$ square units

Question Number : 33 Question Id : 67809439489 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The interval in which the function $f(x) = x^2 logx$ is an increasing function is

Options :

1. $(1\ ,\ e^{-1/2}\ )$

2. $(2\ ,\ e^{-1/2}\ )$

3. $(0\ ,\ e^{1/2}\ )$

4. $(0\ ,\ e^{-1/2}\ )$

Question Number : 34 Question Id : 67809439490 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The stationary points and the corresponding values of the function $f(x) = x^3 - 9x^2 + 15x - 1$ is

Options :

1. 6,-26

2. 3,-26

3. 6,26

4. -6,-26

Question Number : 35 Question Id : 67809439491 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $u = \log\left(\frac{x^2+y^2}{x+y}\right)$ then $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} =$

Options :

1. 2

2. 4

3. 5

4. 1

Question Number : 36 Question Id : 67809439492 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int \log x \, dx$ is

Options :

1. $x \log x + x + c$

2. $x^2 \log x - x + c$

3. $x \log x - x + c$

4. $x \log x - \frac{x^2}{2} + c$

Question Number : 37 Question Id : 67809439493 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\lim_{n \to \infty} \left[\frac{1}{n+1} + \frac{1}{n+2} + \cdots .. + \frac{1}{n+n}\right]$ is

Options :

1. $\log 2$

2. $\log 3$

3. $-\log 2$

4. $\log n$

Question Number : 38 Question Id : 67809439494 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int \frac{\cos \sqrt{x}}{\sqrt{x}} dx$ is

Options :

1. $2 \sin \sqrt{x} + c$

2. $3 \sin \sqrt{x} + c$

3. $2 \sin x + c$

4. $\sin\sqrt{x} + c$

Question Number : 39 Question Id : 67809439495 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The area enclosed between the curve $y^2 = 4ax$ and the line $x = 2y$ is

Options :

1. $\frac{64}{5}$ sq. units

2. $\frac{64}{3}$ sq. units

3. $\frac{65}{4}$ sq. units

4. $\frac{63}{4}$ sq. units

Question Number : 40 Question Id : 67809439496 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int_1^{\frac{\pi}{2}} sin^2 x\, dx$ is

Options :

1. $\frac{\pi}{2}$

2. $-\frac{\pi}{4}$

3. $\frac{\pi}{6}$

4. $\frac{\pi}{4}$

Question Number : 41 Question Id : 67809439497 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int_1^4 \left(\sqrt{x} + \frac{1}{\sqrt{x}}\right) dx$ is

Options :

1. $\frac{20}{3}$

2. $-\frac{20}{3}$

3. $\frac{10}{3}$

4. $\frac{15}{3}$

Question Number : 42 Question Id : 67809439498 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int_0^{\pi/4} \sqrt{1+sin2x}\, dx =$

Options :

1. -1

2. -3

3. 3

4. 1

Question Number : 43 Question Id : 67809439499 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int_0^{\pi/2} \frac{sinx}{1+cos^2x}\, dx =$

Options :

1. $\pi/4$

2. $-\pi/4$

3. $\pi/3$

4. $\pi/2$

Question Number : 44 Question Id : 67809439500 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The particular integral of $(D^2+5D+6)y = e^x$ is

Options :

1. $\frac{-e^{-x}}{12}$

2. $\frac{e^{2x}}{12}$

3. $\frac{e^{x}}{12}$

4. $\frac{e^{x}}{6}$

Question Number : 45 Question Id : 67809439501 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Form the differential equation by eliminating the arbitrary constant a from $ay^2 = x^3$

Options :

1. $\frac{dy}{dx} = \frac{3y}{2x}$

2. $\frac{dy}{dx} = \frac{2x}{3y}$

3. $\frac{dy}{dx} = \frac{x}{y}$

4. $\frac{dy}{dx} = \frac{2y}{x}$

Question Number : 46 Question Id : 67809439502 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution of $\frac{dy}{dx} + y = e^{-x}$ is

Options :

1. $(x + c)e^{-x}$

2. $(x - c)e^{x}$

3. $(x + c)e^{x}$

4. $(x + c)e^{-2x}$

Question Number : 47 Question Id : 67809439503 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The complementary function of $(D^2 + 3D + 2)y = 8sin5x$ is

Options :

1. $c_1e^{-x} + c_2e^{-2x}$

2. $c_1e^{x} + c_2e^{2x}$

3. $c_1e^{-x} + c_2e^{2x}$

4. $c_1e^{2x} + c_2e^{3x}$

Question Number : 48 Question Id : 67809439504 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution of exact differential equation $2xy\,dx + x^2dy = 0$ is

Options :

1. $x^2y^2 = c$

2. $x^2y = c$

3. $x^3y = c$

4. $x^2y^3 = c$

Question Number : 49 Question Id : 67809439505 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Form the differential equation representing the family of curves $x^2 = 4ay$, where a is any arbitrary constant

Options :

1. $x\frac{dy}{dx} - 2y = 0$

2. $x\frac{dy}{dx} + 2y = 0$

3. $x\frac{dy}{dx} - 6y = 0$

4. $x\frac{dy}{dx} - y = 0$

Question Number : 50 Question Id : 67809439506 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution of $\frac{dy}{dx} + y\cot x = \cos x$ is

Options :

1. $y\sin x = \frac{-\cos 2x}{4} + c$

2. $y\sin x = \frac{\cos 2x}{4} + c$

3. $y\sin x = \frac{-\cos 5x}{4} + c$

4. $y\cos x = \frac{-\cos 2x}{4} + c$

Physics

Number of Questions:	25
Display Number Panel:	Yes
Group All Questions:	No

Question Number : 51 Question Id : 67809439507 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the equation $\frac{\alpha}{t^2} = Fv + \frac{\beta}{x^2}$ the dimensional formula for [α], [β] is (here t = time, F= force, v = velocity, x = distance)

Options :

1. MLT^{-1}, MLT^{-3}

2. ML^2T, ML^4T^2

3. ML^2T^{-1}, ML^4T^{-3}

4. ML^3T^{-1}, MLT^{-3}

Question Number : 52 Question Id : 67809439508 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following quantities has not been expressed in proper units?

Options :

1. Young's modulus=N/m^2

2. Surface tension=N/m

3. Pressure = N/m^2

4. Energy=kg m/s

Question Number : 53 Question Id : 67809439509 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Three vectors A, B and C satisfy the relation A.B=0 and A.C=0. The vector A is parallel to

Options :

1. B

2. C

3. B.C

4. BxC

Question Number : 54 Question Id : 67809439510 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If three vectors A, B and C are 12, 5 and 13 in magnitude such that C=A+B, then the angle between A and B is

Options :

1. 60^0

2. 90^0

3. 120^0

4. 30^0

Question Number : 55 Question Id : 67809439511 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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A stone dropped from a certain height, can reach the ground in 5s. It is stopped after 3 seconds of its fall and then allowed to fall again. The time taken by the stone to reach the ground for the remaining distance is

Options :

1. 2 s

2. 6 s

3. 4 s

4. 1 s

Question Number : 56 Question Id : 67809439512 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The range of projectile fired at an angle of 15^0 is 50m. If it is fired with the same speed at an angle of 45^0, its range will be

Options :

1. 25 m

2. 37 m

3. 50 m

4. 100 m

Question Number : 57 Question Id : 67809439513 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A freely falling body acquires a velocity 'v' m/s in falling through a distance of 80m. How much further distance should it fall, so as to acquire a velocity of '2v' m/s?(Take g=10 m/s^2)

Options :

1. 240 m

2. 200 m

3. 400 m

4. 280 m

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Question Number : 58 Question Id : 67809439514 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A block is projected along a rough horizontal road with a speed of 10 m/s. If the coefficient of kinetic friction is 0.10, how far will it travel before coming to rest ?

Options :

1. 50 m
2. 60 m
3. 40 m
4. 10 m

Question Number : 59 Question Id : 67809439515 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What force is required to push a 200 N body up a 30^0 smooth incline with an acceleration of 2 m/s^2? The force is to be applied along the plane is (Take g=10 m/s^2)

Options :

1. 40 N
2. 60 N
3. 80 N
4. 140 N

Question Number : 60 Question Id : 67809439516 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A block of mass 2 kg rests on a rough inclined plane making an angle of 30^0 with the horizontal. The coefficient of static friction between the block and the plane is 0.7. The frictional force on the block is

Options :

1. 9.8N
2. 0.78 x 9.8 N
3. 9.8 x $\sqrt{3}$ N
4. 0.7 x 9.8$\sqrt{3}$ N

Question Number : 61 Question Id : 67809439517 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A man moves on a straight horizontal road with a block of mass 2 kg in his hand. If he covers a distance of 40 m with an acceleration of 0.5 m/s^2, the work done by the man on the block during the motion is (Take g=10 m/s^2)

Options :

1. 40 J

2. 1 J

3. 80 J

4. 20 J

Question Number : 62 Question Id : 67809439518 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a factory it is desired to lift 2000 kg of metal through a distance of 12 m in 1 minute. The minimum horse power of the engine to be used is

Options :

1. 3.5

2. 5.3

3. 4.3

4. 5.8

Question Number : 63 Question Id : 67809439519 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Energy harnessed from flowing water is called --------- energy

Options :

1. Hydel

2. Solar

3. Tidal

4. Geothermal

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Question Number : 64 Question Id : 67809439520 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When a particle executing simple harmonic motion passes through the mean position, it has

Options :

1. minimum K.E and maximum P.E.

2. maximum K.E and maximum P.E.

3. maximum K.E and minimum P.E.

4. mimimum K.E. and mimimum P.E.

Question Number : 65 Question Id : 67809439521 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A particle of mass 200 g executes a simple harmonic motion. The restoring force is provided by a spring of spring constant 80 N/m. The time period is

Options :

1. 0.2 s

2. 0.41 s

3. 0.31 s

4. 0.5 s

Question Number : 66 Question Id : 67809439522 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The temperature at which the speed of sound will be double of its value at 0^0C is

Options :

1. 819^0 C

2. 850^0C

3. 919^0C

4. 900^0C

Question Number : 67 Question Id : 67809439523 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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If the source of sound moves towards an observer, then

Options :

1. The frequency of the source is increased

2. The velocity of sound in the medium is increased

3. The wavelength of sound in the medium towards the observer is decreased

4. The amplitude of vibration of the particles is increased.

Question Number : 68 Question Id : 67809439524 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A cinema hall has a volume of 7500 m^3. The total absorption in the hall if the reverberation time of 1.5 s is to be maintained is

Options :

1. 800 OWU

2. 925 OWU

3. 950 OWU

4. 825 OWU

Question Number : 69 Question Id : 67809439525 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

One mole of oxygen is heated at constant pressure starting at 0^0C. The heat energy that must be supplied to the gas to double its volume is

Options :

1. 2.5 x 273 x R

2. 3.5 x 273 x R

3. 2.5 x 546 x R

4. 3.5 x 546 x R

Question Number : 70 Question Id : 67809439526 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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A vessel contains a gas at a temperature of 27^0C and a pressure of 20 atm. If one half of the gas is released and the temperature of the remaining gas is raised by 50^0C, the new pressure will be

Options :

1. 12.24 atm
2. 11.67 atm
3. 13.79 atm
4. 11 atm

Question Number : 71 Question Id : 67809439527 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The temperature of 5 gm of air is raised from 0^0 C to 1^0 C. The increase in the internal energy of air is (C_v = 0.172 cal/gm/ ^{0} C and J = 4.18 x 10^7 erg/cal)

Options :

1. 3.595 x 10^7 erg
2. 3 x 10^7 erg
3. 4.5 x 10^7 erg
4. 2.595 x 10^7 erg

Question Number : 72 Question Id : 67809439528 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In all reversible processes entropy of the system

Options :

1. decreases
2. increases
3. remains constant
4. remains zero

Question Number : 73 Question Id : 67809439529 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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If one mole of a monoatomic gas ('Y'=5/3) is mixed with one mole of a diatomic gas ('Y'=7/5), the value of 'Y' for the mixture is

Options :

1. 1.40
2. 1.50
3. 1.53
4. 3.07

Question Number : 74 Question Id : 67809439530 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Electrons are emitted with zero velocity from a certain metal surface when it is exposed to radiations of wavelength 7000 A^0. The work function of the metal is

Options :

1. 1 eV
2. 1.52 eV
3. 2.52 eV
4. 1.77 eV

Question Number : 75 Question Id : 67809439531 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A superconducting material exhibits

Options :

1. zero conductivity and complete diamagnetism
2. zero resistivity and complete paramagnetism
3. infinite conductivity and complete paramagnetism
4. zero resistivity and complete diamagnetism

Display Number Panel: Yes
Group All Questions: No

Question Number : 76 Question Id : 67809439532 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The splitting of spectral lines in a strong magnetic field is called

Options :

1. Stark effect

2. Pauli Exclusion Principle

3. Zeeman effect

4. Aufbau Principle

Question Number : 77 Question Id : 67809439533 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Bohr's model can explain

Options :

1. The spectrum of hydrogen atom only

2. The spectrum of hydrogen molecule

3. The solar spectrum

4. Spectrum of an atom or ion containing one electron only

Question Number : 78 Question Id : 67809439534 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The maximum number of electrons that a d-orbital can accommodate is

Options :

1. 2

2. 6

3. 10

4. 14

Question Number : 79 Question Id : 67809439535 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Magnesium Atomic number is 12, which of the following is the electronic configuration

Options :

1. $1S^2\ 2S^1\ 2P^6\ 3S^2$

2. $1S^2\ 2S^2\ 2P^5\ 3S^2$

3. $1S^2\ 2S^2\ 2P^6\ 3S^2$

4. $1S^2\ 2S^2\ 2P^6\ 3S^1 3d^1$

Question Number : 80 Question Id : 67809439536 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

N_2 molecule contains

Options :

1. Covalent bond

2. Ionic bond

3. Hydrogen bond

4. Metalic bond

Question Number : 81 Question Id : 67809439537 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

One mole of any of the particles contains

Options :

1. $6.023X\ 10^{-23}$

2. $6.022X\ 10^{23}$

3. $60.23X\ 10^{23}$

4. $6.023X\ 10^{25}$

Question Number : 82 Question Id : 67809439538 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The normality of the solution obtained by dissolving 4 gm of NaOH in 1Litre is

Options :

1. 1N

2. 0.1N

3. 0.5N

4. 0.02N

Question Number : 83 Question Id : 67809439539 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Molecular weight of H_2SO_4 is

Options :

1. 92

2. 96

3. 98

4. 99

Question Number : 84 Question Id : 67809439540 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Lewis acid is a substance which

Options :

1. Accept protons

2. Accept a lone pair of electrons

3. Donate protons

4. Donate a lone pair of electrons

Question Number : 85 Question Id : 67809439541 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

P^H of a solution is 9.5, the solution is

Options :

1. Basic

2. Acidic

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3. Neutral

4. Amphoteric

Question Number : 86 Question Id : 67809439542 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Laws of electrolysis were given by

Options :

1. Ostwald

2. Faraday

3. Arrhenius

4. Volta

Question Number : 87 Question Id : 67809439543 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Common electrolyte used in the salt bridge is

Options :

1. NaOH

2. $NaCO_3$

3. KCl

4. KOH

Question Number : 88 Question Id : 67809439544 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Standard Reduction Potential of an element is equal to

Options :

1. 1 X Its reduction potential

2. -1 X Its standard oxidation potential

3. -1 X Its reduction potential

4. 1 X Its standard oxidation potential

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Question Number : 89 Question Id : 67809439545 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The standard emf for the cell reaction, $Zn+Cu^{+2} \rightarrow Cu + Zn^{2+}$ is 1.10 V at 25°C. The emf of the cell reaction when 0.1 M Cu^{+2} and 0.1 M Zn^{+2} solutions are used at 25°C is

Options :

1. 1.10V
2. 0.11V
3. -1.10V
4. -0.11V

Question Number : 90 Question Id : 67809439546 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which chemical is responsible for permanent hardness of water?

Options :

1. KCl
2. $MgCl_2$
3. NaCl
4. AgCl

Question Number : 91 Question Id : 67809439547 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Permutit is chemically

Options :

1. Sodium Silicate
2. Aluminium Silicate
3. Hydrated Sodium alumino silicate
4. Calicium silicate

Question Number : 92 Question Id : 67809439548 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The cation exchange resin possesses

Options :

1. Acidic group

2. Basic group

3. Amphoteric group

4. Benzo group

Question Number : 93 Question Id : 67809439549 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Chemically the rust is

Options :

1. Fe_2O_3

2. Fe_2O_3. FeO

3. $Fe_2O_3.XH_2O$

4. Fe_2O_3 . NH_3

Question Number : 94 Question Id : 67809439550 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Galvanizing is the process of coating iron with

Options :

1. Mg

2. Cu

3. Au

4. Zn

Question Number : 95 Question Id : 67809439551 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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Which of the following is not a thermoplastic ?

Options :

1. Bakelite

2. Polystyrene

3. Polythene

4. Nylon

Question Number : 96 Question Id : 67809439552 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Isoprene is a monomer of

Options :

1. Starch

2. Cellulose

3. Natural rubber

4. Lignin

Question Number : 97 Question Id : 67809439553 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Buna-S is a copolymer of

Options :

1. Butadiene and Styrene

2. Butadiene and Acrylonitrile

3. Butadiene and Isoprene

4. Formaldehyde and Styrene

Question Number : 98 Question Id : 67809439554 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Main constituent of natural gas is

Options :

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1. Ethane

2. Methane

3. Butane

4. Carbon Monoxide

Question Number : 99 Question Id : 67809439555 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Ozone layer is present at

Options :

1. Staratosphere

2. Inosphere

3. Thermosphere

4. Atmosphere

Question Number : 100 Question Id : 67809439556 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The amount of DO required to aerobically decompose biodegradable organic matter of a given volume of water is

Options :

1. Biochemical Oxygen Demand

2. Biological Oxygen Demand

3. Chemical Oxygen demand

4. Biomagnification

Mechanical Engineering

Number of Questions:	100
Display Number Panel:	Yes
Group All Questions:	No

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Question Number : 101 Question Id : 67809439557 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Gear finishing operation is called

Options :

1. Shaping
2. Milling
3. Hobbing
4. Burnishing

Question Number : 102 Question Id : 67809439558 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The lathe spindles are usually made hollow and provided with

Options :

1. Internal taper
2. External taper
3. Internal and external taper
4. No taper

Question Number : 103 Question Id : 67809439559 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The commonly used work-holding device on capstan lathe is

Options :

1. Three jaw chuck
2. Four jaw Chuck
3. Collect chuck
4. Hydraulic chuck

Question Number : 104 Question Id : 67809439560 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The cross section of a chisel is usually

Options :

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1. Square

2. Rectangular

3. Hexagonal

4. Octagonal

Question Number : 105 Question Id : 67809439561 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The enlarging of an existing circular hole with a rotating single point tool is called

Options :

1. Drilling

2. Boring

3. Reaming

4. Turning

Question Number : 106 Question Id : 67809439562 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A file with 20 teeth in 25 mm is called

Options :

1. Rough file

2. Bastard file

3. Second cut file

4. Smooth file

Question Number : 107 Question Id : 67809439563 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The cutting tool in a milling machine is mounted on

Options :

1. Spindle

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2. Arbor

3. Column

4. Knee

Question Number : 108 Question Id : 67809439564 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In shaper, the forward stroke is _____and the return stroke is _____

Options :

1. Fast, slow

2. Slow, fast

3. Slow, slow

4. Fast, Fast

Question Number : 109 Question Id : 67809439565 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is a surface finishing operation?

Options :

1. Drilling

2. Honing

3. Milling

4. Turning

Question Number : 110 Question Id : 67809439566 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Carbide and Ceramic tips are used in

Options :

1. Face Mill

2. Slab Mill

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3. Fly Mill

4. Slot Drill

Question Number : 111 Question Id : 67809439567 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following CNC code will give point to point movement?

Options :

1. G00

2. G01

3. G56

4. G94

Question Number : 112 Question Id : 67809439568 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The number of movable joints in the base, the arm and the end reflector of robot Determines

Options :

1. Degrees of freedom

2. Payload capacity

3. Operational limits

4. Flexibility

Question Number : 113 Question Id : 67809439569 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In NC (Numerical Control) machine tool, the position feedback package is connected between

Options :

1. Control unit and programmer

2. Programmer and machine tool

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3. Control unit and machine tool

4. Programmer and process planning

Question Number : 114 Question Id : 67809439570 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The temperature at which the new grains are formed in the metal is called

Options :

1. Lower critical Temperature

2. Upper critical Temperature

3. Eutectic Temperature

4. Recrystallisation Temperature

Question Number : 115 Question Id : 67809439571 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which welding operation is performed at lower temperatures?

Options :

1. Forge

2. Arc

3. Gas

4. Fusion

Question Number : 116 Question Id : 67809439572 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The welding defect caused due to excessive current

Options :

1. Porosity

2. Weld crack

3. Spatter

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4. Undercut

Question Number : 117 Question Id : 67809439573 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The sand which is high in clay content is

Options :

1. Green sand

2. Core sand

3. Dry sand

4. Loam sand

Question Number : 118 Question Id : 67809439574 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When the pattern made in three parts, the middle part is known as the

Options :

1. Cope

2. Drag

3. Cheek

4. Pattern

Question Number : 119 Question Id : 67809439575 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A tooth paste tube can be produce by

Options :

1. Direct Extrusion

2. Indirect Extrusion

3. Impact Extrusion

4. Hydrostatic Extrusion

Question Number : 120 Question Id : 67809439576 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Surface roughness on a drawing is represented by

Options :

1. Triangle
2. Circle
3. Square
4. Zig-zag line

Question Number : 121 Question Id : 67809439577 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An expandable pattern is used in

Options :

1. Sluch casting
2. Squeeze casting
3. Centrifugal casting
4. Investment casting

Question Number : 122 Question Id : 67809439578 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Distance across diagonally opposite corners in case of Hexagonal nut is _____
Where D is nominal diameter

Options :

1. 1.5D+3mm
2. 2.5D+5mm
3. 2D+3mm
4. 1.9D+3mm

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Question Number : 123 Question Id : 67809439579 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Amount of Voltage required to generate the arc under no load condition is called

Options :

1. Arc Voltage
2. Open Circuit Voltage
3. Closed Circuit Voltage
4. Short Circuit Voltage

Question Number : 124 Question Id : 67809439580 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the arithmetical difference between the hole and shaft size before assembly is negative, then the type of fit is

Options :

1. Clearance fit
2. Transition fit
3. Interference fit
4. Running fit

Question Number : 125 Question Id : 67809439581 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is equal to the differences of the two limits of size of the part

Options :

1. Tolerance
2. Low limit
3. High limit
4. Design size

Question Number : 126 Question Id : 67809439582 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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A shaft rotating in a bushed bearing is good example of

Options :

1. Sliding fit
2. Running fit
3. Push fit
4. Driving fit

Question Number : 127 Question Id : 67809439583 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The process of decreasing the cross-section of a bar and increasing its length, is Called

Options :

1. Upsetting
2. Drawing down
3. Spinning
4. peening

Question Number : 128 Question Id : 67809439584 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Cemented carbide tools are manufactured by one of the following process

Options :

1. Forging
2. Powder metallurgy
3. Rolling
4. Non-destructive test

Question Number : 129 Question Id : 67809439585 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The furnace used to produce cast iron is

Options :

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1. Puddling

2. Cupola

3. Bessemer

4. Open Hearth

Question Number : 130 Question Id : 67809439586 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The measure of stiffness is

Options :

1. Modulus of elasticity

2. Modulus of rigidity

3. Bulk modulus

4. Bulk modulus of elasticity

Question Number : 131 Question Id : 67809439587 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The property of a material which allows it to be drawn into a smaller section is called

Options :

1. Plasticity

2. Ductility

3. Elasticity

4. Malleability

Question Number : 132 Question Id : 67809439588 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The ability of a material to resist fracture due to high impact loads, is called

Options :

1. Strength

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2. Stiffness

3. Toughness

4. Brittleness

Question Number : 133 Question Id : 67809439589 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When a closely –coiled helical spring is subjected to an axial load, it is said to be under

Options :

1. Bending

2. Shear

3. Torsion

4. Crushing

Question Number : 134 Question Id : 67809439590 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The momentum diagram for a cantilever whose free end is subjected to a bending momentum, will be a

Options :

1. Triangle

2. Rectangle

3. Parabola

4. Hyperbola

Question Number : 135 Question Id : 67809439591 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The deformation per unit length is called

Options :

1. Tensile stress

2. Compressive stress

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3. Shear stress

4. Strain

Question Number : 136 Question Id : 67809439592 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The point of contraflexure is a point where

Options :

1. Shear force changes sign

2. Bending moment changes sign

3. Shear force is maximum

4. Bending moment is maximum

Question Number : 137 Question Id : 67809439593 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The ratio of the largest load in a test to the original cross-sectional area of the test piece is called

Options :

1. Elastic limit

2. Yield stress

3. Ultimate stress

4. Breaking stress

Question Number : 138 Question Id : 67809439594 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A beam supported on more than two supports is called

Options :

1. simply supported beam

2. fixed beam

3. overhanging beam

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4. continuous beam

Question Number : 139 Question Id : 67809439595 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The compression test is carried on _____ materials.

Options :

1. Ductile

2. Brittle

3. Malleable

4. Plastic

Question Number : 140 Question Id : 67809439596 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Due to slip of the belt, the velocity ratio of the belt drive

Options :

1. Decreases

2. Increases

3. Does not change

4. Zero

Question Number : 141 Question Id : 67809439597 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the tensions in a belt drive are 1200N and 800N, while the velocity of the belt drive is 30 m/s, the power transmitted is

Options :

1. 12kW

2. 1.2kW

3. 36kW

4. 24kW

Question Number : 142 Question Id : 67809439598 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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A differential gear in an automobile is a

Options :

1. Simple gear train

2. Epicyclic gear train

3. Compound gear train

4. Reverted gear train

Question Number : 143 Question Id : 67809439599 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The power transmitted by a belt is maximum when the maximum tension in the belt (T) is equal to

Options :

1. T_C

2. $2T_C$

3. $3T_C$

4. $4T_C$

Question Number : 144 Question Id : 67809439600 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Two pulleys of diameters d_1 and d_2 and at distance x apart are connected by means of an open belt drive. The length of the belt is

Options :

1. $\pi/2\ (d_1 + d_2)\ 2x + (d_1 + d_2)^2/4x$

2. $\pi/2\ (d_1 - d_2)\ 2x + (d_1 - d_2)^2/4x$

3. $\pi/2\ (d_1 + d_2)\ 2x + (d_1 - d_2)^2/4x$

4. $\pi/2\ (d_1 - d_2)\ 2x + (d_1 + d_2)^2/4x$

Question Number : 145 Question Id : 67809439601 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In radial cams, the follower moves

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Options :

1. in a direction perpendicular to the cam axis

2. in a direction parallel to the cam axis

3. in any direction irrespective of cam axis

4. along the cam axis

Question Number : 146 Question Id : 67809439602 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The wood ruff key is generally

Options :

1. Trapezoidal

2. Semicircular

3. Square

4. Rectangular

Question Number : 147 Question Id : 67809439603 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the assembly of pulley, key and shaft

Options :

1. key is made the weakest

2. Pulley is made the weakest

3. Key is made the strongest

4. All are equal in strength

Question Number : 148 Question Id : 67809439604 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The key that transmits power through frictional resistance only is

Options :

1. Saddle key

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2. Sunk key

3. Woodruff key

4. Tangent key

Question Number : 149 Question Id : 67809439605 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The most important dimension in the design of a nut is

Options :

1. Pitch diameter

2. inside diameter

3. outside diameter

4. Height

Question Number : 150 Question Id : 67809439606 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The size of a cam depends upon

Options :

1. Base circle

2. Pitch circle

3. Prime circle

4. Pitch curve

Question Number : 151 Question Id : 67809439607 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For the same compression ratio and heat input, the following is the order of the cycle with respect to their higher thermal efficiencies

Options :

1. Otto, diesel, dual

2. Diesel, Otto, dual

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3. Otto, dual, diesel

4. Dual, Otto, diesel

Question Number : 152 Question Id : 67809439608 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A cycle consisting of one constant pressure, one constant volume and two isentropic processes is known as

Options :

1. Carnot cycle

2. Stirling cycle

3. Otto cycle

4. Diesel cycle

Question Number : 153 Question Id : 67809439609 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Work done in a free expansion process is

Options :

1. Zero

2. Minimum

3. Maximum

4. Positive

Question Number : 154 Question Id : 67809439610 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In throttling process which of the following property is not affected?

Options :

1. Entropy

2. Enthalpy

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3. Temperature

4. Pressure

Question Number : 155 Question Id : 67809439611 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The efficiency of Diesel cycle approaches to Otto cycle efficiency when

Options :

1. Cut-off is increased

2. Cut-off is decreased

3. Cut-off is zero

4. Cut-off is constant

Question Number : 156 Question Id : 67809439612 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a reversible adiabatic process the change in entropy is

Options :

1. Maximum

2. 0

3. Minimum

4. Variable

Question Number : 157 Question Id : 67809439613 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the value of n = 1 in the equation $pv^n = C$, then the process is called

Options :

1. Constant volume process

2. Adiabatic process

3. Isothermal process

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4. Constant pressure process

Question Number : 158 Question Id : 67809439614 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Morse test is used to determine

Options :

1. Indicated power of Single cylinder engine

2. Indicated power of multi cylinder engine

3. Brake power of Single cylinder engine

4. Mean effective pressure of multi cylinder engine

Question Number : 159 Question Id : 67809439615 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The efficiency of a jet engine is higher at

Options :

1. Low speeds

2. High speeds

3. Low altitudes

4. High altitudes

Question Number : 160 Question Id : 67809439616 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Closed cycle gas turbine works on

Options :

1. Carnot cycle

2. Rankin cycle

3. Ericsson cycle

4. Joule cycle

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Question Number : 161 Question Id : 67809439617 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The hyperbolic law is governed by

Options :

1. Gay-lussac law
2. Avogadro's law
3. Charles law
4. Boyle's law

Question Number : 162 Question Id : 67809439618 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is not an extensive property?

Options :

1. Mass
2. Volume
3. Temperature
4. Weight

Question Number : 163 Question Id : 67809439619 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An impulse turbine is used for

Options :

1. Low head of water
2. High head of water
3. Medium head of water
4. High Discharge

Question Number : 164 Question Id : 67809439620 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a centrifugal pump casing, the flow of water leaving the impeller is

Options :

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1. Rectilinear flow

2. Radial flow

3. Free vortex

4. Forced vortex

Question Number : 165 Question Id : 67809439621 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Navier stoke's equation represents the

Options :

1. Energy

2. Mass

3. Pressure

4. Momentum

Question Number : 166 Question Id : 67809439622 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The ratio of the normal force of jet of water on a plate inclined at an angle of 30° as compared to that when the plate is normal to jet, is

Options :

1. $1/\sqrt{2}$

2. 1/2

3. 1

4. 2

Question Number : 167 Question Id : 67809439623 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Pelton wheel develops 1750 kW under a head of 100 metres while running at 200 r.p.m. and discharging 2500 litres of water per second. The unit speed of the wheel is

Options :

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1. 10 r.p.m.

2. 20 r.p.m.

3. 40 r.p.m.

4. 80 r.p.m.

Question Number : 168 Question Id : 67809439624 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Francis turbine is

Options :

1. An axial flow impulse Turbine

2. A radial flow impulse Turbine

3. An impulse Turbine

4. A reaction radial flow turbine

Question Number : 169 Question Id : 67809439625 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A turbine develops 10000 kW under a head of 25 metres at 135 r.p.m. Its specific speed is

Options :

1. 175.4 r.p.m.

2. 215.5 r.p.m.

3. 241.5 r.p.m.

4. 275.4 r.p.m

Question Number : 170 Question Id : 67809439626 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

De-Laval turbine is a

Options :

1. Single rotor impulse turbine

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2. Multi-rotor impulse turbine

3. Single rotor reaction turbine

4. Multi-rotor reaction turbine

Question Number : 171 Question Id : 67809439627 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A turbine runs at 240 rpm under a head of 9m. What will be the speed of the turbine if the operating head is 16m?

Options :

1. 320 rpm

2. 426.27 rpm

3. 264.67 rpm

4. 230 rpm

Question Number : 172 Question Id : 67809439628 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a reaction turbine stage enthalpy drop in the stator blades is 4.62 kJ/Kg and that in the rotor blades is 2.38kJ/Kg. The degree of the reaction of the stage is

Options :

1. 0.52

2. 0.43

3. 0.34

4. 0.26

Question Number : 173 Question Id : 67809439629 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a nozzle, the effect of supersaturation is to

Options :

1. decrease dryness fraction of steam

2. decrease specific volume of steam

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3. increase the entropy

4. increase the heat drop

Question Number : 174 Question Id : 67809439630 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An air preheater is installed

Options :

1. before the economiser

2. before the superheater

3. between the economiser and chimney

4. before the Turbine

Question Number : 175 Question Id : 67809439631 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a boiler, feed water supplied per hour is 205 kg while coal fired per hour is 23 kg. The net enthalpy rise per kg of water is 145 kJ. If the calorific value of the coal is 2050 kJ/kg, then the boiler efficiency will be

Options :

1. 56%

2. 63%

3. 74%

4. 78%

Question Number : 176 Question Id : 67809439632 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is a water tube boiler ?

Options :

1. Lancashire boiler

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2. Babcock and Wilcox boiler

3. Locomotive boiler

4. Cornish boiler

Question Number : 177 Question Id : 67809439633 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The natural draught is produced by

Options :

1. Compressor

2. Centrifugal fan

3. Chimney

4. Pump

Question Number : 178 Question Id : 67809439634 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is not a boiler mounting?

Options :

1. Fusible plug

2. Injector

3. Feed check valve

4. Blow off cock

Question Number : 179 Question Id : 67809439635 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Steam leaves the steam nozzle at

Options :

1. Low pressure and Low velocity

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2. High pressure and Low velocity

3. High pressure and High velocity

4. Low pressure and High velocity

Question Number : 180 Question Id : 67809439636 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A heat pump working on a reversed Carnot cycle has a C.O.P. of 5. It works as a refrigerator taking 1 kW of work input. The refrigerating effect will be

Options :

1. 1 kW

2. 2 kW

3. 3 kW

4. 4 kW

Question Number : 181 Question Id : 67809439637 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a vapour absorption refrigeration system, the compressor of the vapour compression system is replaced by

Options :

1. Throttling Device

2. Condenser

3. Evaporator

4. Absorber, generator and liquid pump

Question Number : 182 Question Id : 67809439638 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Air refrigeration operates on

Options :

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1. Carnot Cycle

2. Rankine Cycle

3. Brayton Cycle

4. Ericsson Cycle

Question Number : 183 Question Id : 67809439639 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Two reversible refrigerators are arranged in series and their COPs are 5 and 6 respectively. The COP of composite refrigeration system would be:

Options :

1. 1.5

2. 2.5

3. 3.5

4. 4.5

Question Number : 184 Question Id : 67809439640 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Break-even point can be calculated by using the relation (If F= Fixed cost, V= Unit variable cost, P=unit sales price)

Options :

1. F/V

2. F/(P-V)

3. F/(V-P)

4. F/(P+V)

Question Number : 185 Question Id : 67809439641 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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Which type of chart is used to plot the number of defectives in the output of any process?

Options :

1. X bar Chart

2. P Chart

3. R Chart

4. C Chart

Question Number : 186 Question Id : 67809439642 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Depreciation of machines is categorized under the head

Options :

1. Direct expenses

2. Indirect expenses

3. Receipts

4. Administrative expenses

Question Number : 187 Question Id : 67809439643 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The main objective of providing depreciation is

Options :

1. To show actual financial position

2. To calculate true profit

3. To reduce Tax

4. To generate funds for operation

Question Number : 188 Question Id : 67809439644 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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In inventory control, EOQ is the

Options :

1. Optimum lot size

2. Highest level of inventory

3. Lot corresponding to break-even point

4. Capability of plant to produce

Question Number : 189 Question Id : 67809439645 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following layouts is suited for mass production?

Options :

1. Process layout

2. Product layout

3. Fixed position layout

4. Functional layout

Question Number : 190 Question Id : 67809439646 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Gnatt Chart provides information about

Options :

1. Material handling

2. Utilization of Manpower

3. Production schedule

4. Efficient working of machine

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Question Number : 191 Question Id : 67809439647 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Marketing is a process which aims at

Options :

1. Productivity
2. Product Quality
3. Profit making
4. Satisfaction of customer needs

Question Number : 192 Question Id : 67809439648 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A-B-C analysis is used in

Options :

1. CPM
2. PERT
3. Inventory control
4. Labour control

Question Number : 193 Question Id : 67809439649 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Basic tool in work study is

Options :

1. Graph paper
2. Process chart
3. Planning chart
4. Stop watch

Question Number : 194 Question Id : 67809439650 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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In a Single dry plate clutch, torsional vibrations are absorbed by

Options :

1. Cushion Spring

2. Coil Spring/Torsional Spring

3. Central Hub

4. Clutch Pedal

Question Number : 195 Question Id : 67809439651 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Propeller shaft is a link between the following

Options :

1. Gearbox and differential

2. Engine and gearbox

3. Differential and road wheels

4. Engine to road wheels

Question Number : 196 Question Id : 67809439652 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Overdrive is placed

Options :

1. Between gear box and propeller shaft

2. Before gear box

3. In the differential

4. Between Engine and Clutch

Question Number : 197 Question Id : 67809439653 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Ackerman mechanism is related to

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Options :

1. Differential gear mechanism

2. Steering mechanism

3. Braking mechanism

4. Cooling mechanism

Question Number : 198 Question Id : 67809439654 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a four wheel drive, the number of gear boxes are

Options :

1. 1

2. 2

3. 3

4. 4

Question Number : 199 Question Id : 67809439655 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The tilting of the front wheels away from the vertical, when viewed from the front of the car, is called

Options :

1. Camber

2. Caster

3. toe-in

4. toe-out

Question Number : 200 Question Id : 67809439656 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Hydraulic brakes function on the Principle of

Options :

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1. Conservation of Mass
2. Conservation of Energy
3. Avogadro's law
4. Pascal's Law